

What Is Claimed Is:

1. An external pressure type hollow fiber membrane having a reinforcing supporter for supporting a separating
5 filtration layer for gas separation and water treatment, wherein the reinforcing supporter is woven only with mono-filaments or by mixed spinning of mono-filaments and multi-filaments.
2. The hollow fiber membrane according to claim 1,
10 wherein the mixed ratio of the mono-filaments and the multi-filaments or the multi-filaments and the mono-filaments is 1:1 to 63:1.
3. The hollow fiber membrane according to claim 2,
15 wherein the mixed ratio of the mono-filaments and the multi-filaments or the multi-filaments and the mono-filaments is 2:1 to 7:1.
4. The hollow fiber membrane according to claim 1,
20 wherein the thickness of the mono-filament is 30 to 450 deniers.
5. The hollow fiber membrane according to claim 1, wherein the thickness of the multi-filament is 30 to 150 deniers.
- 25 6. The hollow fiber membrane according to claim 1, wherein the reinforcing supporter is made with 8 to 64 yarns, and the number of the yarns is increased by multiple of 8.
7. The hollow fiber membrane according to claim 1,
30 wherein the reinforcing supporter is made of polyester, nylon, polypropylene or the like.

8. The hollow fiber membrane according to claim 1, wherein 0.1 to 80% of polymer constituting the separating filtration layer is inserted into the reinforcing supporter.

5 9. The hollow fiber membrane according to claim 1, wherein the reinforcing supporter is a weight-deducted supporter.

10. A method for preparing an external pressure type hollow fiber membrane having a reinforcing supporter with mono-
10 filaments for gas separation and water treatment, the method comprising the steps of:

weaving the reinforcing supporter only with mono-filaments or by mixed spinning of the mono-filaments and multi-filaments; and

15 coating the reinforcing supporter with dope in a spinneret and discharging it to external coagulating solution to form the hollow fiber membrane.

11. The method according to claim 10, further comprising
20 the step of treating the reinforcing supporter with internal coagulating solution.

12. The method according to claim 10, further comprising the step of applying surface weight deduction treatment to the
25 reinforcing supporter with alkali.

13. The method according to claim 10, wherein the hollow fiber membrane is prepared through an automatic process carried out in a series from an internal coagulating solution treatment
30 to a spinning process by connecting an internal coagulating solution injector and the spinneret with a wire extending to a vertical axis of the center of the spinneret.

14. The method according to claim 10, wherein the hollow fiber membrane is prepared through a manual process that the internal coagulating solution treatment and the spinning process are carried out manually.

15. An apparatus for preparing an external pressure type hollow fiber membrane having a reinforcing supporter with monofilament for gas separation and water treatment, the apparatus comprising:

a central nozzle extending along a centrally vertical axis, the central nozzle having inlets for introducing internal coagulating solution(4) and the reinforcing supporter thereto and a hollow fiber membrane outlet(11-1); and

a spinneret(7) communicating with the central side of the central nozzle, the spinneret(7) having an undiluted spinning solution nozzle(10) formed to join the internal coagulating solution, the reinforcing supporter and undiluted spinning solution.

16. The apparatus according to claim 15, further comprising:

an internal coagulating solution injector(1); and

a wire(2) extending along a centrally vertical axis of the internal coagulating solution injector(1) and the spinneret(7), the wire(2) having a part of a side wall a part of which is perforated for introducing and discharging the internal coagulating solution thereto and therefrom,

wherein an internal coagulating solution treatment and a spinning process are automated by connecting the internal coagulating solution injector(1) and the spinneret(7) to each other through the wire(2).

17. The apparatus according to claim 16, wherein the internal coagulating solution injector(1) includes a roller(5) for carrying the reinforcing supporter, a high pressure injection nozzle(3) for injecting the internal coagulating solution into the wire(2), an internal coagulating solution inlet(2-1) formed on the wire to correspond to the high pressure injection nozzle(3), a heater(13) and a hot blaster(3-1) for removing the internal coagulating solution of the outer surface of the reinforcing supporter, and an internal coagulating solution outlet(6) for discharging the internal coagulating solution collected after the use therefrom.